

CLAIMS

The listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 19 (currently amended): A method of semiconductor wafer processing comprising the steps of:

providing a multi-chamber module including a plurality of vertically-stacked semiconductor wafer process chambers;

providing a loadlock chamber for each of the vertically-stacked semiconductor wafer process chambers, wherein each loadlock chamber having a transfer arm including an upper wafer shelf for carrying unprocessed wafers and a lower wafer shelf for carrying processed wafers, and a semiconductor wafer process chamber;

simultaneously transferring a processed wafer and an unprocessed wafer ~~between said loadlock chamber and said respective process chamber~~ from said process chamber to said respective loadlock chamber.

Claim 20 (currently amended): A method of semiconductor wafer processing according to claim 19 further comprising the step:

evacuating said loadlock chamber prior to simultaneously transferring a processed wafer and an unprocessed wafer ~~between said loadlock chamber and~~ from said process chamber to said respective loadlock chamber.

Claim 21 (original): A method of semiconductor wafer processing according to claim 19, further includes providing a cooling plate below the transfer arm within said loadlock chamber, said method further comprising:

transferring said processed wafer from said lower wafer shelf to said cooling plate.

Claim 22 (original): A method of semiconductor wafer processing according to claim 21 further comprising;

transporting said unprocessed wafer on said upper wafer shelf from said loadlock chamber to said process chamber;

transferring said unprocessed wafer from said upper wafer shelf to a wafer chuck mounted in said semiconductor wafer chamber,

translating said wafer chuck from a retracted position, past a chemical vapor deposition injector mounted in said semiconductor wafer process chamber, to an extended position, whereby an unprocessed wafer is processed into a processed wafer.

Claim 23 (original): A method of semiconductor wafer processing according to claim 19 further comprising the steps prior to the simultaneously transferring step:

receiving a first unprocessed wafer on the transfer arm;
transferring said first unprocessed wafer to said process chamber;
concurrently processing said first unprocessed wafer into a first processed wafer and receiving a second unprocessed wafer on the transfer arm; and
retrieving said first processed wafer by said transfer arm while holding said second unprocessed wafer on said transfer arm.

Claim 24 (currently amended): A method of semiconductor wafer processing comprising the steps of:

providing an atmospheric front end unit including a front end robot for transporting a semiconductor wafer, a multi-chamber module including a plurality of vertically-stacked semiconductor wafer process chambers, a loadlock chamber for each semiconductor wafer process chamber, and a wafer transfer apparatus for each loadlock chamber, each said loadlock chamber and each said wafer transfer apparatus dedicated to a respective wafer process chamber;

transporting a wafer between said atmospheric front end unit and one of said loadlock chambers via said robot; and

simultaneously transferring a processed and an unprocessed wafer ~~between said one loadlock chamber and a respective~~ from said wafer process chamber to said respective loadlock chamber via said wafer transfer apparatus.

Claim 25 (canceled)

Claim 26 (previously presented): The method according to claim 19 wherein the simultaneous transferring is performed by a single-axis wafer transfer arm capable of providing an extended position and a home position.

Claim 27 (previously presented): The method according to claim 24 wherein the simultaneous transferring is performed by a single-axis wafer transfer arm capable of providing an extended position and a home position.